

REMARKS

Claims 1 through 18 are now pending in this application. Claims 1 through 14 stand under rejection. New claims 15 through 18 have been added. Care has been taken to avoid the introduction of new matter. In response to the Office Action of April 15, 2003, withdrawal of the rejections and allowance of the application upon consideration of the following comments are respectfully solicited.

Claims 1 through 3 and 7 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Ramanujan, of record, as set forth at paragraph 2 of the Office Action. Claim 5 has been rejected, at paragraph 4 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over Ramanujan. It is urged that claims 1 through 3 and 7 are distinguishable from Ramanujan.

Independent claim 1 recites, *inter alia*, the following:

a diffraction grating light valve having a plurality of reflective elements arranged in a predetermined direction for converting said second laser beam into modulated signal beams; and

... wherein said second laser beam is linearly polarized in a direction substantially parallel to said predetermined direction.

Independent claim 7 requires similar limitations. The Office Action bases the rejection at least in part on an interpretation of Ramanujan as disclosing "a plurality of reflective elements (reflective modulator sites 43) arranged in a predetermined direction (parallel to z-axis)." This interpretation is not correct. As seen from Fig. 1 of Ramanujan, the reflective modulator sites 43 are arranged in a direction that is parallel to the x-axis, thus perpendicular to the z-axis (optical axis 13). The Office Action further concludes that "the second laser beam (of Ramanujan) is linearly polarized in a direction substantially parallel to the predetermined direction." In fact, Ramanujan states in column 10, lines 7-8 or column 14, line 63, that "the polarization direction of an incident light (second laser beam) is along z-axis." Thus, in Ramanujan, the polarization direction (the

direction of z-axis) is not parallel to the direction in which the plurality of reflective elements are arranged (the direction of x-axis).

In contrast, according to the present invention, "the second laser beam is linearly polarized in a direction substantially parallel to the direction in which the plurality of reflective elements are arranged." That is, the second laser beam of the present invention, as required by claims 1 through 3 and 7, differs from an incident light of Ramanujan by 90 degrees in the polarization direction. It is submitted, therefore, that Ramanujan does not anticipate claims 1 through 3 and 7.

With respect to claim 5, the Office Action recognizes that Ramanujan does not disclose that the "first optical system comprises a halfwave plate for rotating a polarization of said first laser beam by 90 degrees," as required by this claim. Reliance was placed on column 7, lines 1-3 of Ramanujan, which states that "the reflective modulator sites 43 require properly oriented polarized light in order to function optically." However, incident light in Ramanujan is shown to have a polarization direction that is perpendicular to the direction in which the reflective modulator sites 43 are arranged, and different from that of the present invention by 90 degrees. Such difference is out of range of fine adjustment with respect to a polarization direction. Therefore, the polarization direction of the present invention differs from Ramanujan not merely within the realm of "discovery of an optimum value" for a person of ordinary skill in the art.

One having ordinary skill in the art must be presumed to follow conventional wisdom and is not an innovator. *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Dembizcak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999); *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 227 USPQ 293 (Fed. Cir. 1985). To establish the requisite motivation to support a finding of obviousness under 35 U.S.C. § 103, "clear and particular" factual findings must be made as to a specific understanding or specific technological

principle that would have realistically compelled one having ordinary skill in the art to modify a particular reference to arrive at the claimed invention based upon facts-- not generalizations. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 UPSQ2d 1161 (Fed. Cir. 2000); *Ecolochem Inc. v. Southern California Edison, Co.*, *supra*; *In re Kotzab*, 217 F.3d 1365, 55 USPQ 1313 (Fed. Cir. 2000); *In re Dembiczak*, *supra*. Such motivation, must be based upon "clear and particular" showings of combinability in the prior art -- not in the application disclosure. *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985). It is submitted that, in the absence of the teachings of the present application, there is no evidentiary basis for modification of Ramanujan.

Claims 4, 6 and 8 through 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramanujan in view of U.S. patent 4,729,640 (Sakata) as set forth at paragraph 5 of the Office Action. Reconsideration of this rejection is respectfully solicited. Claims 4 and 6 are dependent from 3 and 5, respectively, and are patentably distinguishable from Ramanujan at least for the reasons advanced above. Sakata has not been relied upon for teaching the subject matter of the parent claims. With respect to the instant rejection, as indicated in the Office Action, Sakata discloses use of a light at a wavelength of 820 nm as an incident light in a transparent modulation element. However, Sakata does not teach that a light of such a wavelength is superior as an incident light to a light of any other wavelength, nor does it provide suggestion thereof. That is, even in combination with Sakata, it is not obvious to the person having ordinary skill in the art to expect that changing the wavelength of an incident light produces an effective result. In the field of art pertinent to the present invention, wherein light having a wavelength of 830 nm is generally used as an incident light, there is nothing that would have compelled a person of ordinary skill in this art to change the incident light and use a reflective modulation element as disclosed by Ramanujan,

despite knowledge of Sakata's use of light at a wavelength of 820 nm. It is urged, therefore, that claims 4, 6 and 8 through 14 are patentably distinguishable.

Newly added dependent claims 15-18 recite the additional requirements that the plurality of reflective elements comprise:

a ribbon-shaped reflective element having a fixed reflecting surface; and  
a ribbon-shaped movable reflective element having a movable reflecting surface.

As indicated in the Office Action, Ramanujan states that a crystal transparent diffraction modulator as disclosed therein is sensitive to the polarization direction of an incident light. However, this statement does not suggest that a diffraction grating modulator is generally sensitive to the polarization direction of an incident light. As previously discussed, Ramanujan states that "the polarization direction of an incident light is along z-axis", further stating in column 9, line 61, that "z-axis of c-axis of crystal." Thus, a person of ordinary skill in the art would naturally consider that sensitiveness of a grating modulator to a polarization direction, as indicated in Ramanujan, is strictly limited in the field of anisotropy of electro-optic crystal (bulk crystal 46) used for a diffraction modulator. Accordingly, it would not have been obvious from the disclosure of Ramanujan, to consider that even a diffraction modulator using no anisotropic crystal (such as diffraction grating light valve 25 in the present invention which includes fixed ribbons 51a and active ribbons 51b) would be sensitive to the polarization direction of an incident light. Thus, there is no reason why a person of ordinary skill in the art would have concluded from the disclosure of Ramanujan that "a diffraction grating modulator including a fixed reflective plate and a movable reflective plate is sensitive to the polarization direction of an incident light, and this polarization direction is parallel to a direction in which gratings are arranged." Claims 15 through 18, therefore, are patentably distinguishable.

In summary, it is submitted that all pending claims are patentably distinguishable with respect to the prior art. Allowance of the application is respectfully solicited.